

CLAIMS

1. Method of determining at least one characteristic parameter (TR) of a resonant structure (4) comprising the following steps:
 - a) placing the resonant structure (4) at a location, said location being located in the far field of a first antenna (2) and in the far field of a second antenna (5), and
 - b) emitting electromagnetic waves (EEW) with varying frequencies in a given frequency range by means of the first antenna (2) such that the emitted electromagnetic waves (EEW) are modified by the resonant structure (4) and modified electromagnetic waves (MEW) are achieved, and
 - 10 c) determining during a first determining step a first electric power-value being representative of the power associated with the emitted electromagnetic waves (EEW), and
 - d) receiving the achieved modified electromagnetic waves (MEW) by means of the second antenna (5), and
 - e) determining during a second determining step a second electric power-value
 - 15 being representative of the power associated with the received modified electromagnetic waves (MEW), and
 - f) determining the at least one characteristic parameter by using the first and second power-values determined during the first and second determining steps.
- 20 2. Method according to claim 1, characterized in that the electromagnetic waves (EEW, MEW) have frequencies in the radio frequency region.
3. Method according to claim 1, characterized in that the electromagnetic waves (EEW, MEW) have frequencies above 800 MHz.
- 25 4. Method according to claim 1, characterized in that at least one characteristic parameter of an antenna or a transponder are determined.
5. Method according to claim 1, characterized in that the electromagnetic waves
- 30 (EEW, MEW) travel through an anechoic space.

6. Method according to claim 1, characterized in that a through-calibration is performed for a determining apparatus for performing the first and second determining steps.

5 7. Method according to claim 1, characterized in that a 2-port calibration is performed for a determining apparatus for performing the first and second determining steps.

8. Method according to claim 1, characterized in that the electric power determined during the first and second determining steps are determined by means of a
10 network analyzer (1).

9. Method according to claim 1, characterized in that the resonance frequency of the resonant structure is determined.

15 10. Method according to claim 1, characterized in that the relative transmission efficiency (TR) of the resonant structure is determined.

11. Device (D) for determining at least one characteristic parameter (TR) of a resonant structure (4), including:

20 a) a first antenna (2) and

b) a second antenna (5), and

c) a retaining device (3) for retaining the resonant structure (4) at a location, said location being located in the far field of the first antenna (2) and in the far field of the second antenna (5),

25 d) a signal generator for generating an HF-signal (OUTS) with varying frequencies, wherein the HF-signal (OUTS) generated by the signal generator is transferable to the first antenna (2), said first antenna (2) being provided for emitting electromagnetic waves (EEW) with varying frequencies to the resonant structure (4), said resonant structure (4) takes care for modifying the emitted electromagnetic waves (EEW) and for achieving
30 modified electromagnetic waves (MEW) and said second antenna (5) being provided for receiving the generated modified electromagnetic waves (MEW), and

e) a first determining device for determining a first electric power-value representative of the power associated with the emitted electromagnetic waves (EEW) emitted by the first antenna (2) and for generating a first determining result

f) and a second determining device a for determining a second electric power-value representative of the power associated with the received modified electromagnetic waves (MEW) received by the second antenna (5) and for generating a second determining result, and

5 g) processing means for processing the first electric power-value and the second electric power-value and for determining the at least one characteristic parameter (TR) by using the first and second power-values.

12. Device (D) according to claim 11, characterized in that the signal generator is
10 realized by a network analyzer (1).

13. Device (D) according to claim 11, characterized in that the signal generator is connected to the first antenna (2) via an amplifier (6).

15 14. Device (D) according to claim 11, characterized in that both the first determining device and the second determining device are realized by one determining apparatus.

20 15. Device (D) according to claims 12 and 14, characterized in that the determining apparatus being realized by the network analyzer (1).

16. Device (D) according to claim 12, characterized in that the processing means are realized by the network analyzer (1).

25 17. Device (D) according to claim 11, characterized in that the first antenna (2) and the retaining device (3) and the second antenna (5) are positioned in an anechoic chamber (7).

30 18. Device (D) according to claim 11, characterized in that the first antenna (2) and the second antenna (5) are realized for emitting and receiving electromagnetic waves (EEW, MEW) in the radio frequency range.

19. Device (D) according to claim 14, characterized in that the first antenna (2) is realized by a Tx-antenna and the second antenna (5) is realized by an Rx-antenna.

20. Device (D) according to claim 11, characterized in that the retaining device (3) includes a rotating movable table (8).

- 5 21. Device (D) according to claim 11, characterized in that the material of the retaining device (3) consists at least mainly of a material having a dielectric constant close to 1 and a permeability close to 1.